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ABSTRACT

This manual is designed for use in elementary school systems that do not have a swimming pool available. It contains eight classroom sessions and provides a core of information in basic water safety, water survival, and water rescue. (JD)

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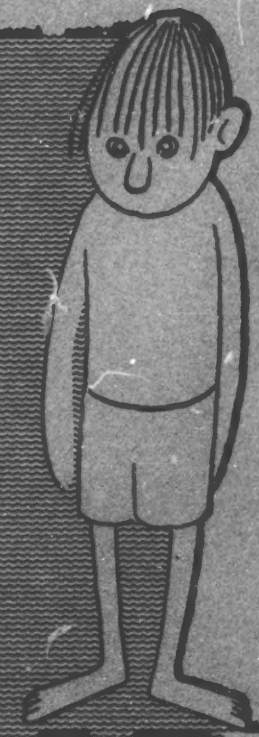
ED190589

A CLASSROOM COURSE IN WATER SAFETY AND SURVIVAL

WET BUT SAFE



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LAW ENFORCEMENT DIVISION
MICHIGAN DEPARTMENT OF NATURAL RESOURCES

SP 016 594

Foreword

Most people begin participating in recreational activities they will enjoy for the rest of their lives at an early age. Many of these activities such as fishing, waterfowl hunting, swimming, snowmobiling, boating, trapping, ice fishing, ice boating, and skin diving are water oriented.

An average of 300 people drown annually in Michigan. Approximately 100 of these needless deaths occur in boating accidents and approximately 200 in non-boating water accidents. How do these accidents happen and who are the victims?

The majority of these accidents occur when the victim makes a sudden unplanned entry into the water from a boat or from shore, dock, pier, or bank. The victim usually has clothing on rather than swimwear. Young people up to 10 years of age account for 50 to 60 non-boating drownings each year in this way. Many young people 15 to 20 years of age drown because they couldn't swim as far as they thought they could. Panic occurs in most victims, making self-rescue impossible and rescue by others difficult. And, ironically, *most water accident victims drown within 15 feet of safety.*

The Law Enforcement Division of the Michigan Department of Natural Resources recognizes youth can have respect for water without fear of it. Research and experimentation have demonstrated that 3rd graders can be taught to effectively perform mouth-to-mouth rescue breathing, non-swimming rescues of others and personal water survival skills. Practice of proper actions during simulated water emergencies provide the youngsters the attitude and skill to cope with personal water emergencies and those involving others.

This program is based on the research of the Law Enforcement Division and provides the core of information for an effective program to all those interested in teaching water safety.

G. M. Dahl, Chief
Law Enforcement Division
Michigan Department of
Natural Resources

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To The Teacher

The "Wet — But Safe" program was developed by the Recreational Safety Section, Law Enforcement Division, Michigan Department of Natural Resources. The program is designed for the elementary student in school systems not having swimming pool available.

The manual contains eight classroom sessions and provides a core of information to the teacher in basic water safety, water survival and water rescue. The first paragraph of each lesson is a brief outline of the lesson's material. Illustrations provide clarification of ideas and are designed to be used as masters for overhead projector transparencies. Copies of the illustrations can be made available to younger students for coloring projects or any other purpose the instructor may find useful. At the end of the lesson, learning activities are suggested before or during the lesson which will increase learning and skill. Also provided at the end of each lesson is a list of organizations having resource materials available.

Your students are the present and future recreational water users of this state. The attitudes and skills you teach your students will contribute to a significant reduction of water accidents and deaths, especially those involving young victims.

State of Michigan
Department of Natural Resources
Law Enforcement Division

Program Objectives

The "Wet — But Safe" classroom water safety and survival program was designed to accomplish the following objectives:

1. Provide a list of basic reference and resource materials for the teachers.
2. Familiarize the student with a broad view of water oriented recreational activities and how water accidents happen while participating in each activity.
3. Familiarize the student with accident prevention procedures.
4. Teach the student water safety, survival and rescue skills through the use of suggested learning activities.

Lesson 1
Water Activities and Accidents

This unit reviews the major water-oriented recreational activities people enjoy in Michigan. The common causes of accidents are reviewed while participating in various water-oriented activities.

Unit Objectives

Acquaint the student with year-round water oriented recreational activities and some common ways that accidents occur while participating in those activities.

Swimming and Wading

Except for pleasure riding in an automobile, swimming and wading are Michigan's major outdoor activities. Most of the approximately eleven million people who visit Michigan State Parks each year engage in swimming or wading sometime during their visit. Most young people swim or wade somewhere near their home.

Each year an average of 70 people drown because they over-estimated their swimming skill. In addition, an average of 55 young people up to 10 years of age drown while playing in or near water because they can't swim and were not being watched closely by adults. Several people drown each year because they were swimming alone or in dangerous places.

Learning to swim can be fun and may also be the most important skill a person can learn. Some of the places where people can learn to swim are local school systems, Red Cross, YMCA, YWCA, Scouting programs, Boy's and Girl's Clubs and community pools. Taking lessons from a qualified instructor is the best and safest way to learn to swim.

Boating

Michigan is the number one boating state in the nation. There are over one-half million registered motorboats and approximately two-hundred thousand non-powered rowboats, canoes and sailboats. These boats range from small prams and inflatables to large yachts over fifty feet long. The average boat in Michigan is a 14 foot aluminum fishing boat powered by an outboard motor under 20 horsepower. Less than ten percent of the boats in Michigan are over 26 feet long.

Boating activity appears in many forms, including motorboating for pleasure, cruising, sailing, canoeing and rowing, and simple transportation. Boats are used in connection with other recreational activities such as fishing, waterfowl hunting, water skiing, and skin and scuba diving.

Approximately one hundred persons drown annually in Michigan as a result of boating accidents. In addition, approximately 200 additional boating accidents occur annually in which people are injured or property damage results.

A majority of boating accidents are caused by standing up in smaller boats, improper loading, disregard of the weather, poorly maintained equipment and just plain carelessness.

Skin and Scuba Diving

Interest in exploration of Michigan's underwater world is increasing every year. There are about 10,000 certified divers in Michigan with more being trained and certified every day.

Accidents happen to scuba divers when they dive alone or have not been properly trained. Skin divers are sometimes hit by boats because they fail to display the required divers flag. Another cause of accidents to young divers or others swimming is excessive breath holding and hyperventilation.

Water Skiing

Waterskiing is a specialized boating activity enjoyed by many people. It is a three-person sport involving a boat driver, an observer to relay signals from the skier to the driver, and the skier.

Many people are involved in waterskiing accidents each year. A good number of these accidents occur to novice skiers who did not receive proper instruction before attempting to water ski. The novice skiers do not have the skills and are hurt falling or running into rafts, docks or other obstacles. Many other waterskiing or boating accidents occur because an observer was not present. Not having an observer is illegal in Michigan as the boat operator is too busy operating the boat and watching the skier.

Fishing

Fishing is Michigan's second most popular outdoor recreational activity. Over one million fishing licenses are sold annually in Michigan. There are fish in most of Michigan's waters and people can fish from boats, while wading, from shore, or from docks, dams, piers and other man-made structures.

Over the years, fishermen have accounted for approximately 50 percent of all boating deaths. In addition, fishermen account for approximately ten percent of non-boating water accidents. How do they happen? Fishermen are notorious for standing up in small boats — to land a fish, net their partner's fish, start the motor or pull up the anchor. These "standers" lose their balance and fall out or capsize the boat. Other fishermen fall into the water from shore or from docks, dams, piers and banks. Others get into trouble while wading when they step into deep holes or lose their balance in fast currents.

Waterfowl Hunting

In recent years, over 100,000 duck hunters annually use Michigan waters. They hunt from canoes and other small boats on waters ranging in size from small ponds and streams to the Great Lakes. Duck hunters also hunt from blinds built at the waters edge or by wading in marshes.

Duck hunters, like fishermen, have accidents when they stand up in small boats to shoot and set out or take in decoys. These sportsmen also step into deep holes while wading or fall into the water from shore or man-made structures along the shore.

Winter Sports

There are several winter outdoor recreational activities that take place on frozen Michigan waters. Ice fishing, skating, snowmobiling and ice boating are winter activities that attract hundreds of thousands of people each year. The snowmobile has created a new winter family outdoor recreational activity that grows tremendously each year. Michigan now has approximately 400,000 registered snowmobiles.

Travel across ice-covered water is always somewhat risky. Annually, several people drown by breaking through unsafe ice. Snowmobiles require more ice than is required for people on foot. Unsupervised children playing on ice results in 5 to 10 deaths every year. Ice strength cannot be determined merely by looking, the ice must be checked.

Suggested Activity

Prior to the first lesson, students could gather pictures, clippings, slides and other materials showing ways people enjoy water-oriented recreational activities and stories of water accidents or water hazards.

In conjunction with the lesson, the students could draw pictures or make posters illustrating the fun and/or hazards of the activities discussed.

Lesson 2
Personal Flotation Devices

This unit is a review of personal flotation devices (PFDs). The review includes basic legal requirements concerning PFDs, the types available and their proper care and use.

Unit Objectives

Familiarize the student with the types of PFDs, their function, and how to properly use them and care for them.

A Personal Flotation Device (PFD) is just that, a device that if worn properly will float a person on the surface of water. A PFD is one of the most important pieces of safety equipment a person can have. Unfortunately, PFDs are often the most abused, misused or non-used items.

Michigan boating law requires a PFD to be carried for each person aboard *any* type of boat operated on *any* type of water (lake, river, pond, stream). The PFDs must be U.S. Coast Guard approved, be in good condition, and be readily available to each person.

There are four types of Coast Guard approved PFDs.

Type I — Life Preserver

The life preserver is the type PFD most often recommended by boating safety agencies. It contains more floatation materials than any other type PFD. It is designed to turn the unconscious wearer face up on the surface of the water and keep the wearer's face out of the water.

Type II — Buoyant Vest

Buoyant vests are wearable PFDs and popular with recreational boaters. They are designed to support an unconscious wearer face up on the surface of the water. They do not have as much buoyancy as the Type I PFDs and therefore will not hold up as much weight and may not turn the wearer over.

Type III — Special Purpose Devices

There are many new styles of PFDs that are becoming quite popular. These devices are usually designed with a special water-oriented activity in mind. Warm jackets, ski vests, sailing vests, hunting and fishing vests are comfortable to wear and allow freedom of movement for the activity for which they were designed and for general use. These devices have improved wearing comfort in order to encourage people to wear them anytime they are on or near water.

The label on Type III PFDs should be checked to make sure they are Coast Guard approved. Many have not yet been approved.

Type III PFDs are not designed to turn an unconscious wearer face up. They are designed to hold the wearer in a general vertical position in the water but not necessarily keep the head above water without some effort on the part of the wearer.

Type IV — Throwable PFDs

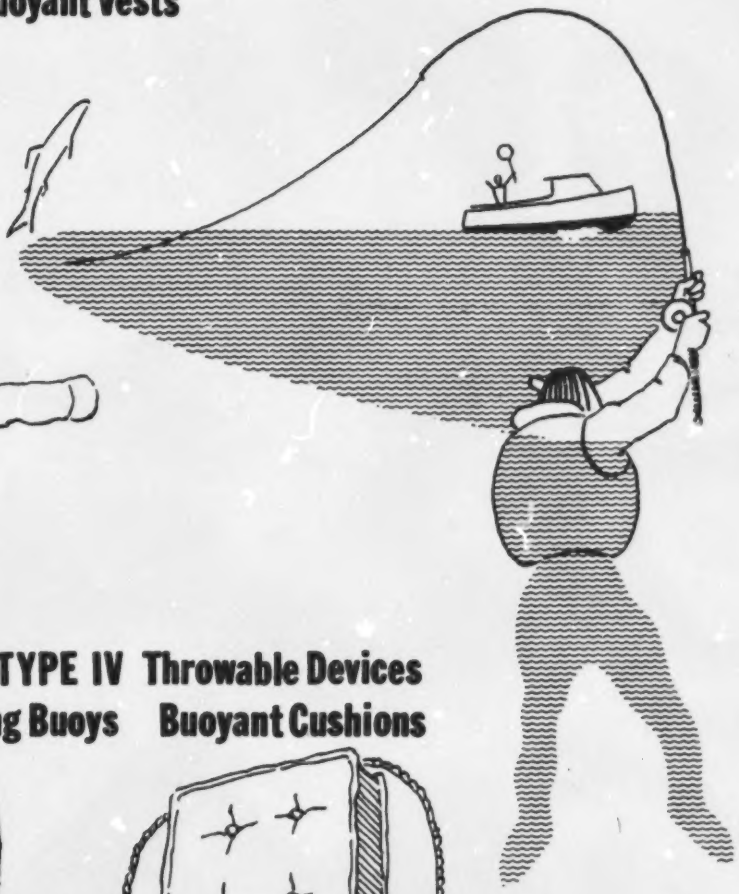
The familiar ring buoy is one of the Type IV PFDs. Another is the Buoyant Cushion, the most widely used style of PFD. Type IV PFDs are designed to be thrown to a person in the water; in other words, a rescue device. *They are not designed to be worn.* They are designed to be grasped by a person in the water.

It is especially dangerous for a person to attempt to wear a buoyant cushion on their back. Wearing a buoyant cushion on the back tends to force and hold the head under water.

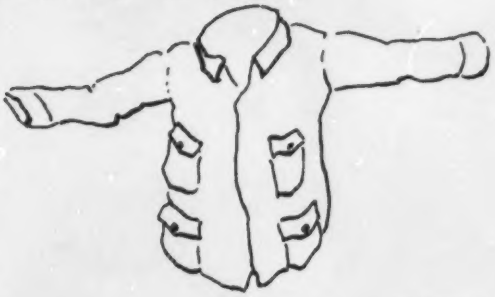
PERSONAL FLOTATION DEVICES

TYPE I Life Preservers

TYPE II Buoyant Vests



TYPE III
Special Purpose Devices



TYPE IV Throwable Devices
Ring Buoys Buoyant Cushions

All agencies concerned with boating and water safety recommend the wearable types of PFDs. These agencies also recommend everyone wear their PFDs. If PFDs were worn in a boat and by persons near the water, most drowning deaths would not occur.

There are some persons that should always wear a PFD whenever they are on, in or near the water.

These persons are:

1. The very young
2. Poor swimmers or non-swimmers
3. Persons with physical handicaps
4. Elderly persons

Care of PFDs

A PFD is no good unless it works. To make sure they continue to work properly, they should be checked for:

1. Straps attached securely and covers not torn.
2. Leaks in inner plastic bags by squeezing firmly and listening for air leaks.
3. Hardness or heaviness which indicates a waterlogged PFD.
4. Legible approval labels.

Any PFD that is defective or damaged should be destroyed immediately so that someone will not attempt to use it. Get a replacement immediately. If PFDs get wet, dry them in a shady, well ventilated place.

Suggested Activities

Sources for demonstration equipment include the local Conservation Officer, Sheriff's Marine Patrol, U.S. Coast Guard, marine supply dealers, sporting goods stores and parents. Attempt to get samples of all types and several styles of each type PFD and some line 25 to 50 feet long.

Teach students to properly adjust and put on a PFD *without help*. Races could be conducted with students competing against the clock to see how long it takes. Point out to students the difficulty of putting on PFDs while struggling in the water.

Students should learn and practice the techniques of using the throwable devices. The buoyant cushion or life ring with the 25 to 50 foot line attached could be thrown at paper plate "targets" in a gym or on the playground. Students should practice throwing, holding of the coiled line, retrieving, and proper foot placement and balance of weight.

Students should also learn and practice techniques of throwing buoyant cushions without a line attached. This skill may be more practical from many viewpoints. Using the paper plate targets, students should learn that without a line attached, they may have only one chance to put the PFD on or near the paper "victim."

During these activities the importance of the non-swimming rescues should be pointed out. This emphasis will be continued in the next unit.

Resource Materials

"No Good Unless You Wear Them" — Michigan Department of Natural Resources, Recreational Safety Section (small poster)
"About Life Jackets" — Sterns Manufacturing Company, P. O. Box 1498, St. Cloud, MI 56301
"Pleasure Boating Textbook" — Michigan Department of Natural Resources, Recreational Safety Section

Lesson 3
Emergency Lifesaving

This unit is designed to provide the student with necessary knowledge and skills needed to perform elementary non-swimming rescues of others in a water emergency. The unit emphasizes the importance of the non-swimming rescue in most water emergencies.

Unit Objectives:

Teach the students how to safely perform non-swimming rescues using standard and non-standard equipment.

Many good swimmers drown trying to cope with a panic-stricken person during a rescue attempt. The usual result is a double drowning. Studies have shown that the free-swimming rescue is the least efficient rescue system for several reasons:

1. Usually takes longer to reach the victim.
2. There is always some risk to the rescuer.
3. Requires continuous training, practice and physical conditioning to remain effective.
4. Other alternatives usually reach the victim more quickly with less or no danger to the rescuer.

Most people drown within 15 feet of safety.

Non-swimming rescue systems of reaching with or without equipment and throwing are the best in most cases.

Many people could be rescued if others readily recognized the value of reaching assists. The simplest form of reachng assist is executed when the rescuer lies down on the dock, pier, or bank and reaches out, grasping the victim by any body part that can be reached and slowly and firmly pulling the victim back to safety. The rescuer could also extend one leg for the victim to grasp.

If the victim is farther out, the rescuer can extend his reach by using improvised equipment. Some of the more common things used that are probably handy are:

1. Articles of rescuer's clothing (shirt or trousers)
2. Paddle or oar
3. Fishing pole
4. Branch
5. Rope
6. Gaff hook (Be careful!)
7. Boat or canoe (even one that is swamped)
8. Landing net
9. Chair
10. Water ski

YOU CAN HELP

Throw a floatable object.

Reach with anything.

WATER SURVIVAL DEMONSTRATION/PARTICIPATION PROGRAM

Michigan Department of Natural Resources
Law Enforcement Division

J. L. Martindale

Objectives: By the end of the 1 hour time period, students (participants) will be able to:

1. Verbalize basic water accident information.
2. Verbalize basic required equipment in watercraft.
3. Demonstrate water survival skills necessary to overcome accidental entry into the water at any time of the year both for themselves and others.

Time Period: One Hour

Facility Required: Indoor or outdoor pool or natural water facility capable of effective discussion and participation of group size.

Optimum Number of Participants: Twenty

Equipment Required (Optimum)

1. Three pairs waders, sizes 8, 10, 12
2. Three pairs hip boot, sizes 8, 10, 12
3. One hunting coat
4. One snowmobile suit, size medium
5. One snowmobile helmet, Z190 approved
6. One pair snowmobile boots with felt liner removed
7. One winter coat or jacket, non-wool
8. Samples of all types of PFDs (personal flotation devices) in adult and child sizes
   a. 2 Type I, 1 each size
   b. 3 Type II, 1 each size
   c. 6 Type III
      (1) 1 float coat, medium adult
      (2) 2 ski vests, 1 adult, 1 child
      (3) 1 canoe vest
      (4) 2 general type, 1 adult, 1 child
   d. 1 Type II toddler device
   e. 1 ski belt, non-USCG approved
   f. 1 Type IV cushion
9. Any other clothing or flotation devices appropriate in a specific geographical location.
10. Samples of "junk" flotation
    a. Gallon milk jug
    b. Large thermos-type jug

Methods of Presentation: Discussion, demonstration, participation.

Program Outline

I. Introduction 5 min.

A. Program presenter is introduced

B. Basic water accident and water emergency information

1. Number of people that drown each year. (In Michigan, about 300; 200 non-boating, 100 boating, approximately.)

2. Most people drown within 15 feet of safety.

3. Majority of victims in both boating and non-boating accidents have accidently entered the water.

4. Very few people cannot float.

5. Most clothing worn out of doors traps air and helps a person float better than without clothing.

II. Demonstration 30 min.

A. Enter water wearing hip boots and hunting coat. 5 min.

1. Show face-up and face-down floating.

2. Show maneuverability.

3. Describe weight of water out of water.

B. Describe and demonstrate PFD samples 10 min.

1. Describe various types of PFDs and how they function.

2. Use participants to demonstrate special features of wearing.

3. Describe and demonstrate elements of U.S. Coast Guard approval or non-approval.

a. Label

b. Size

c. Good and serviceable condition

d. Accessibility

4. Demonstrate poor flotation characteristics of non-approved ski belt.

C. Demonstrate floatability of snowmobile suit and related equipment. 7 min.

1. Enter water wearing snowmobile suit, boots, and helmet.

2. Describe thermal quality and function of any clothing in water.

D. Demonstrate floatability of waders and winter jacket. 8 min.

1. Enter water wearing waders and winter jacket.

2. Remove jacket in water.

3. Remove air from waders.

4. Show ability to swim 15 feet with no air in waders.

5. Exit water; answer questions.

III. Participation

A. Encourage participants to try all equipment in water using techniques available.

B. Continue to answer individual questions on a one-to-one basis.

D. Assist participants in properly putting on and removing clothing and equipment.

D. At termination of unit, thank group for participating.

NOTE: During participation portion, at least one person with rescue credentials should be on deck observing participants in the water. This person should <u>not</u> be involved in the program presentation to avoid distraction.

When using an extension, the rescuer must make sure it is well within reach of the victim. Because of panic, victims sometimes have to be prodded with the extension before they realize it is there.

The rescuer must be prepared for a panicky jerk in order to avoid being pulled into the water. Once again, the rescuer should be lying down, sitting away from the edge or kneeling while bracing for that panicky jerk. Once the victim has grasped the extension, pull the victim slowly and firmly back to safety.

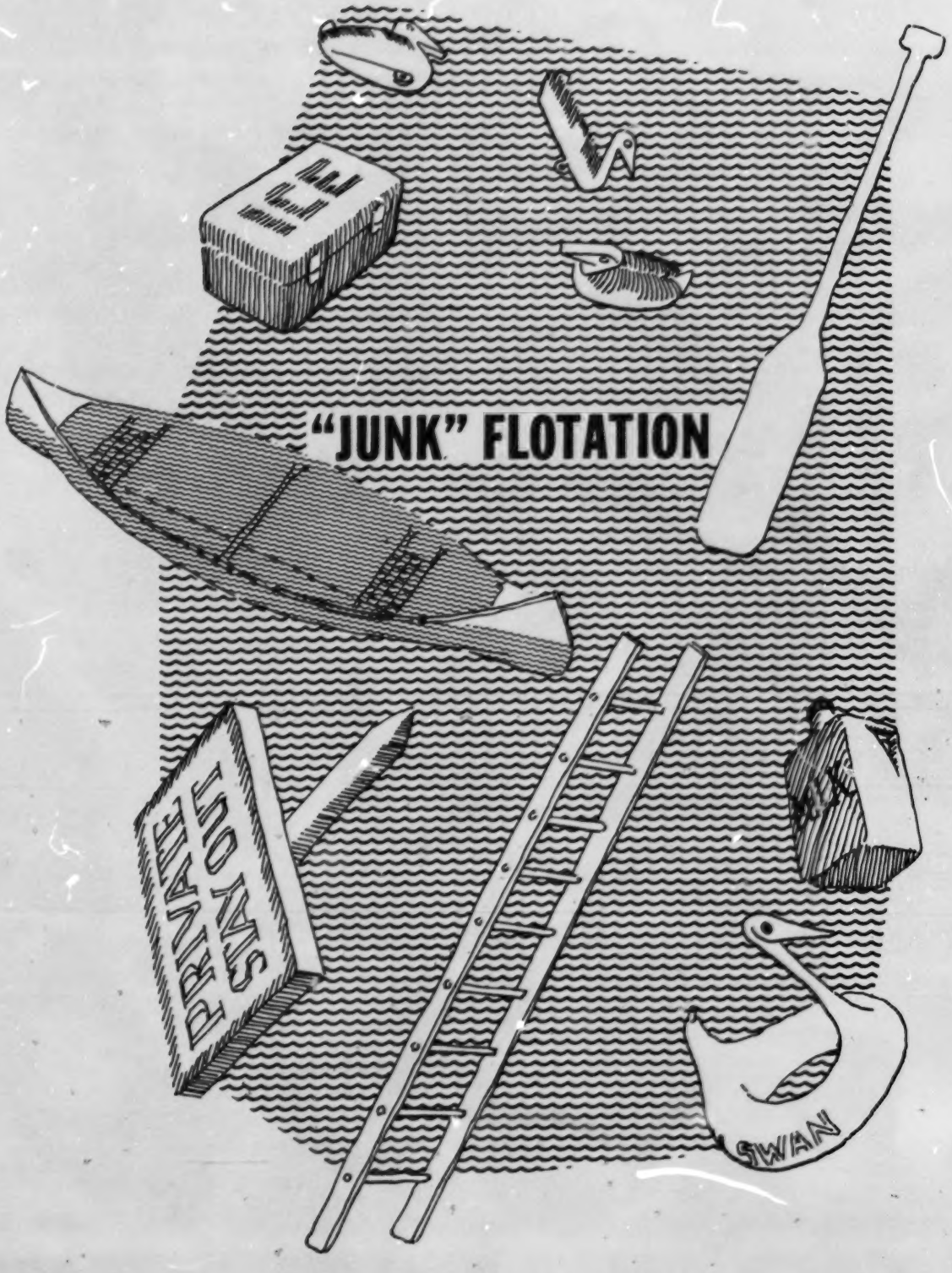
The throwing rescue system is used when the victim is beyond reach of any available extensions. The use of Type IV PFDs for this purpose have already been covered. But what if there are no Type IV PFDs available? Tragic water deaths have occurred as desperate observers have looked for PFDs while improvised flotation devices have been lying literally at their feet.

The term "junk" flotation has been applied to many common items that would be found lying around any place near the water. Some examples of these emergency flotation items or "junk" include:

1. Capped thermos bottles and jugs
2. Capped bleach bottles
3. Metal, plastic or styrofoam ice chests
4. Paddles or oars
5. Beach toys
6. Wooden ladders
7. Wooden folding chairs
8. Large pieces of firewood
9. A tightly rolled sleeping bag
10. Canoe or boat, even if swamped can be shoved out to victim
11. A canteen
12. Camp cook kit
13. Spare tire from any vehicle (inflated on the rim)
14. Partially filled gas can or outboard motor tank
15. Boat fenders
16. Surfboard
17. Water ski
18. Boards or lumber of any type
19. Motorcycle or snowmobile helmet
20. Large branch
21. Tackle box (closed)

The important thing to remember is try anything and everything in sight. Something the rescuer grabs will float. All the rescuer has to do is deliver it. The "delivery" techniques have already been covered in Lesson 2.

Note that some of the example items are on both lists of improvised rescue equipment.



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Suggested Activities

Prior to the unit, students could bring some of the examples of improvised rescue equipment from home. A display of the "junk" could be used in conjunction with the discussion of the unit.

Using the gathered equipment students could practice rescuing a classmate using the three systems contained in the unit. The heavy items should not be used for safety reasons. Point out to the students that the victim should not be "hit" with the thrown rescue device but the device should be thrown close to the victim when no line is attached. Remind the students that attaching a line to any of the "junk" flotation may reduce the range it can be thrown but greatly improves the probability of rescue.

Again practice the throwing techniques with line attached as contained in Lesson 2.

Resource Materials

"Find A Float" — 11½ minute 16 mm film on emergency rescue devices and rescue techniques. Available through Department of Natural Resources Film Loan library.

Lesson 4
Boating Safety

Basic principles of boating safety are presented in this unit. Included are safety equipment, loading and boarding, general safety practices and emergency procedures.

Unit Objectives

Acquaint the students with equipment and safety practices associated with safe boating.

Boating fun ends tragically and permanently for nearly 100 people each year. Almost all boating accident deaths are due to drowning rather than accident related injuries. Most of the victims are not injured before they enter the water. The victims enter the water because they made a mistake or were careless.

Safety Equipment

Safe boating begins with safe equipment. The boat and motor must be in good condition. Michigan watercraft laws requires certain safety equipment be in the boat. PFDs have already been discussed. Other required basic safety equipment includes lights for nighttime operation, fire extinguishers, and whistles or horns.

In addition to the required safety equipment are other items that are highly recommended for safety. These include:

1. First aid kit — in case of injury whether minor or serious.
2. Anchor and plenty of line — important if you are caught in heavy weather.
3. Flashlight — to find things in the boat and if regular running lights go out.
4. Paddle or oars — motors can stop.

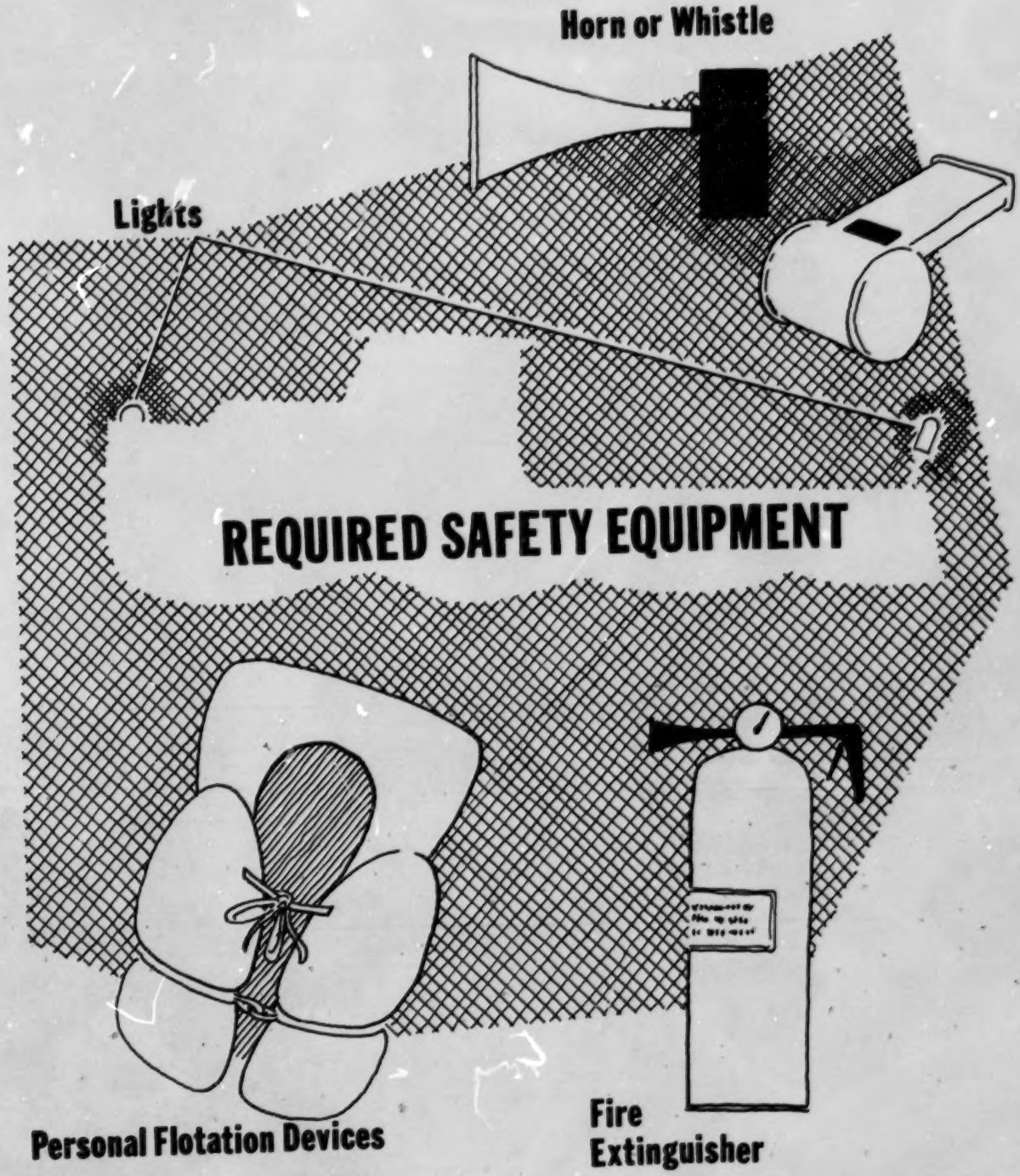
Loading and Boarding

Many boating accidents occur because the boat is improperly loaded. Proper loading starts at the dock or on shore. Never pick up gear and step into the boat while carrying the gear. The proper way to load any boat is to place the gear on the dock alongside the boat, then get into the boat yourself. Always step carefully from the dock or shore into the center of the boat using the gunwales for support. This is especially important in small boats and canoes. Once seated in the proper place, carefully lift the gear into the boat. A better technique is to have someone hand you the gear from the dock.

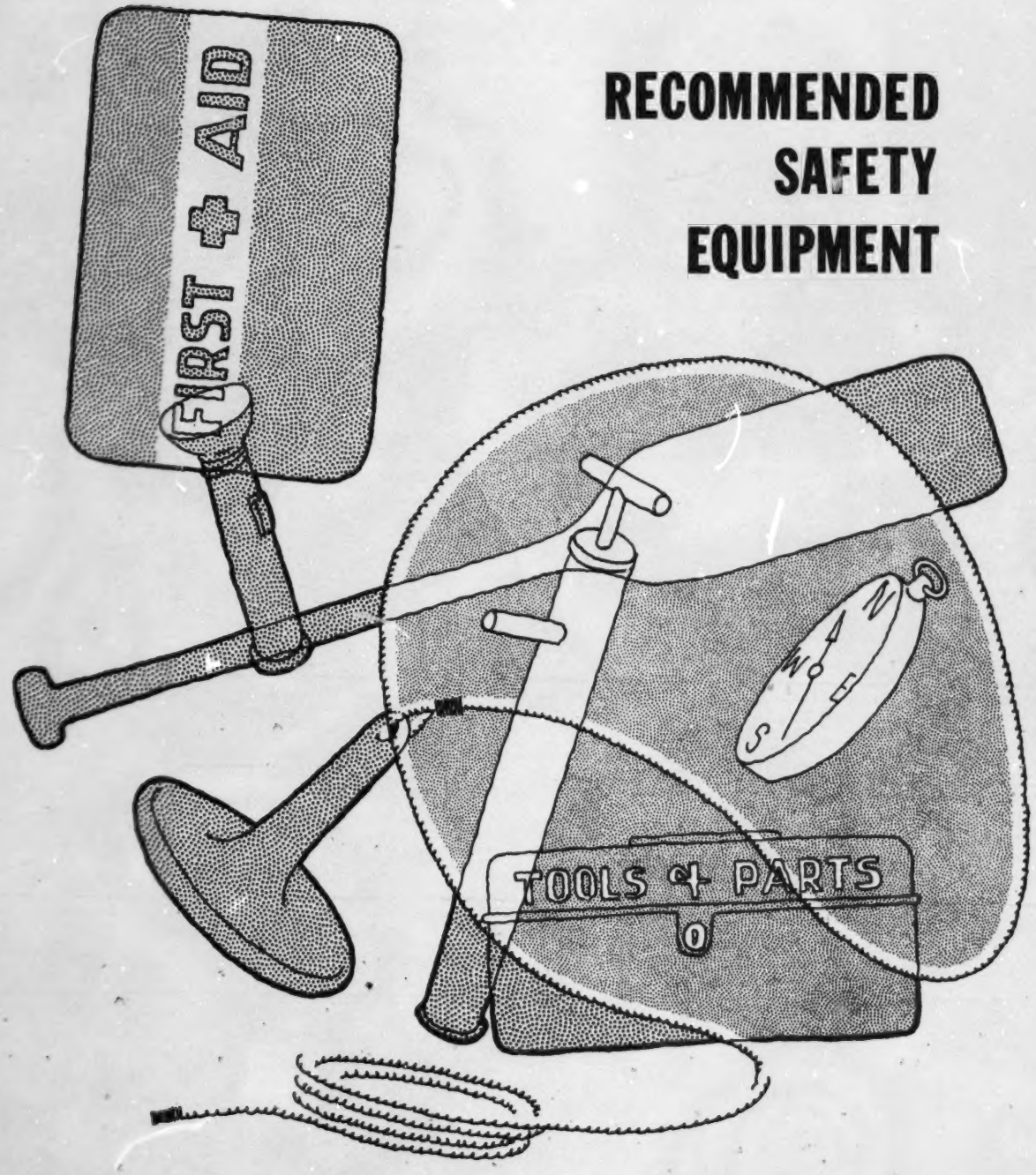
An alternative is to load the gear into the boat without getting into it. After all the gear is aboard then get the people on board. Whenever people are boarding a boat, one person at a time gets in and is seated before the next person starts to board.

The attitude of the boat in the water is called "trim." Distribution of people and gear greatly affects the boats trim thus its seaworthiness. A boat in trim is seaworthy, a boat out of trim is not.

Overloading a boat is also very dangerous. Most Michigan boats have a capacity plate in the boat indicating the safe number of people and weight the boat will carry under normal conditions.


Horn or Whistle
Lights
REQUIRED SAFETY EQUIPMENT
Personal Flotation Devices
Fire
Extinguisher

RECOMMENDED SAFETY EQUIPMENT



Docking

Safety when returning from a day's boat trip is just as important as when starting out. Some people become careless when docking their boat because they are tired from the fun of the day. As much caution is needed when unloading people and gear as when loading.

Safety Review

The following is a guide review of safety ideas for boaters.

Definite Do's

1. Make sure there is one Coast Guard approved PFD for each person in the boat. Better yet, make sure they are wearing them.
2. Make sure the other required and recommended safety equipment is aboard.
3. Use courtesy and common sense at all times, especially around other water users.

Definite Don'ts

1. Don't stand up in small boats.
2. Don't horseplay in the boat.
3. Don't take the weather conditions for granted — stay alert for changes.

Caught by the Weather

Weather conditions can change rapidly, especially on large lakes. If boaters get caught in changing weather, they should first put on their PFDs. Next, head for the safety of shore immediately. Keep weight low in the boat. If necessary, passengers should sit or lie down on the bottom of the boat.

Boating Accident Procedures

Sometimes, in spite of all precautions, an accident will occur. There are certain things the people involved should do. First of all, don't panic. If the boat has swamped or overturned, it will still float, so *stay with the boat.* A boat completely filled with water will still float and support as many people as were in it unless it was overloaded. Swimming to shore is foolhardy; it's usually much farther away than it looks.

Suggested Activities

Students could gather or draw pictures of required and recommended safety equipment. Discussion of why the equipment is necessary and how it works could center around the gathered or illustrated equipment. Another review of PFDs might be valuable.

A small boat or canoe placed on nearly-inflated large inner tubes will simulate the feeling of the craft being in water. Students should practice loading, unloading, boarding and debarking from the craft. Point out capacity plates and the information on them.

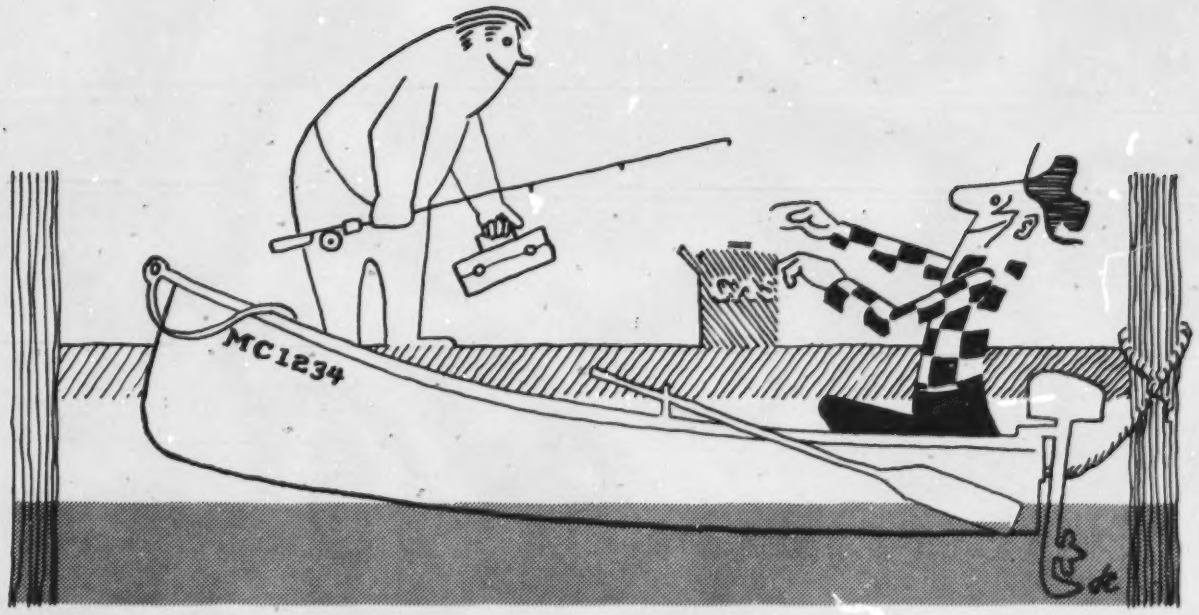
Explore sources of information about the weather and what the weather report means in relation to boating activities.

LOADING THE BOAT

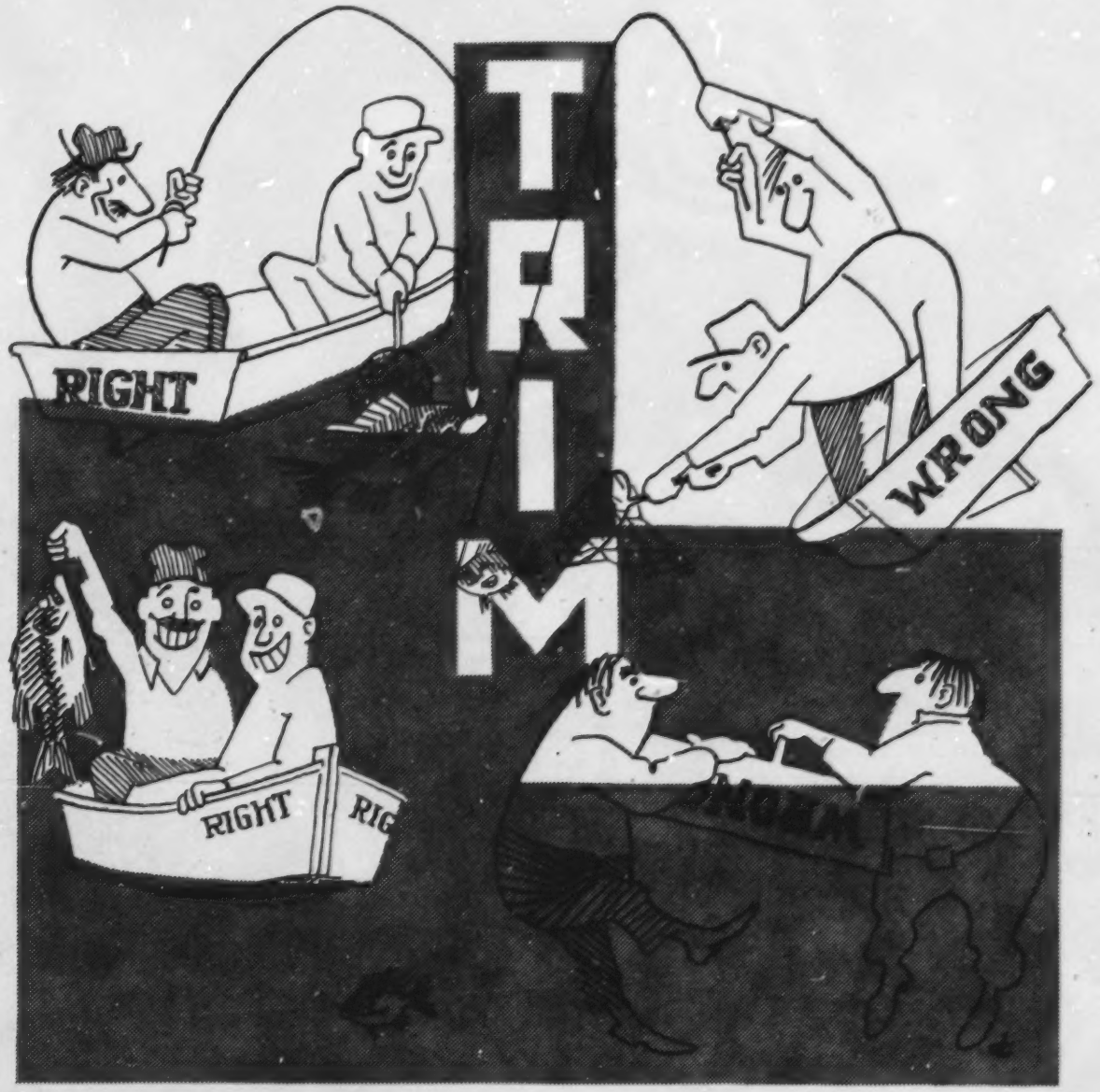
First thing in the boat is you.

Load from the boat.

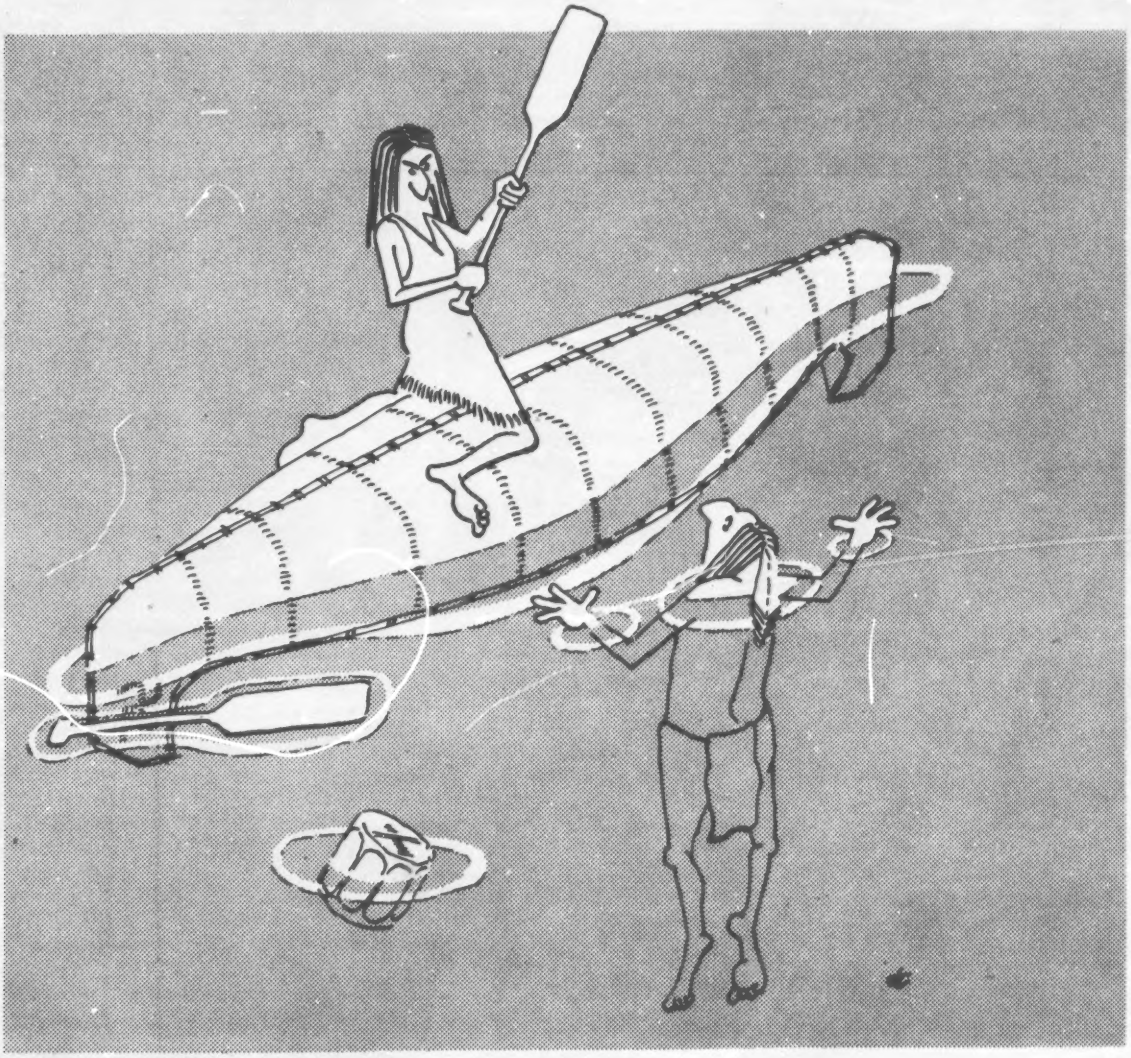
Sit down.



KEEP A BOAT IN TRIM



STAY WITH THE BOAT



Resource Materials

"Pleasure Boating Student Manual:" Available from Recreational Safety Section, Department of Natural Resources

"Many Happy Returns" Manual: Available from Recreational Safety Section, Department of Natural Resources

"People Afloat:" 13 minute 16 mm film, color — general boating safety film available from Department of Natural Resouces film loan library.

Lesson 5
Water Fun in Summer

This unit reviews the most commonly used recreational water facilities and the basic safety practices that should be followed, especially for non-boating activities.

Unit Objectives

Familiarize students with safety practices associated with commonly used water facilities.

Water is like a big magnet. It draws people of all ages to it. Water means fun and pleasure to almost everyone. The old swimming hole can be anything from a small pond or bend in a creek to a highly organized community pool. Any water, clean or not so clean, attracts people to play, swim, walk, camp, boat, fish or other activities.

No matter what kind of recreational water facility is being used, there are basic safety practices that should be followed. These practices hold true even at a guarded pool or beach:

1. Learn water survival techniques.
2. Never swim alone.
3. Always have competent adult supervision anytime young people are near the water.
4. Don't go in the water if chilled, overheated, or right after eating.
5. Stay within the safe or marked area.
6. Don't swim in darkness.
7. Keep glass, cans and rubbish out of the swimming beach, or pool area.
8. No horseplay.

The reasons for these practices are obvious to most people, but are ignored too often. Several factors determine whether a particular water facility is safe or not. Among these factors are natural hazards, man-made hazards, the activity at the facility, the attitude of the users, and supervision of activities at the facility.

Studies of water accident reports give a clue to the type of water facilities people are using and how dangerous the type of facilities might be. For example, in 1973 reports indicated the following percentages of total non-boating accidents occurring on each type of water:

1. Great Lakes — 16%
2. Lakes and rivers directly connected to the Great Lakes — 16%
3. Inland lakes — 26%
4. Other rivers, streams and creeks — 8%
5. Public pools — 3%
6. Private pools — 14%
7. Ponds, ditches and canals (includes gravel and borrow pits) — 16%
8. Other (cesspools, sump pump pits, sewers) — 1%

Each year people drown either in the surf on the beaches or by being swept off piers and breakwaters by large waves on the shoreline of the Great Lakes and connecting waters. Lack of adult supervision is usually a factor when young people are involved. This lack of supervision is a factor in those accidents occurring on the more protected connecting waters. Such

accidents usually occur at an improved facility. Over-estimating swimming skill is another factor. In addition to the general rules, important safety practices for the Great Lakes and connecting waters might be:

1. Watch the weather and water conditions.
2. Don't swim when you are tired.

The high-use areas for water recreation are our inland lakes. In most cases the general water safety practices are quite adequate. Some lakes contain deep holes or drop-offs. Safe swimming areas will not have these hazards. Diving into shallow water is dangerous and can cause serious injury. A special safety precaution for inland lakes is: *Check the water before you dive.*

Streams, rivers and creeks are places that traditionally are "the old swimming hole." Too often these areas are not the safest places to swim. However, they can be much safer if the safety practices already pointed out are followed.

Public pools are often over-crowded. A person can literally get lost. However, pools have an excellent safety record. The few accidents that occur in public pools are due to crowding and poor guarding techniques. A person who follows the general safety rules, practices courtesy and common sense in the pool, won't need the help of the lifeguard.

Private swimming pools account for a high number of accidents. The primary reason is that the water draws small neighborhood children into the pool area to play when the owner is not there. Parents should know where their children are at all times. Pool owners must make their pools "accidental entry proof" when they are not using them. Children must be taught at a very early age not to go near water unless with parents or a responsible adult. Special safety practices for private pools should include:

1. Don't go into the pool area unless invited by the owner.
2. Make sure a competent adult is supervising.

Ponds, ditches, canals, gravel and "borrow" pits are man-made water holes not normally designed for the safety of swimmers. Steep banks and bottoms cause difficulty in climbing out should a person fall in. Many canals are lined with high "sea walls." In spite of the dangers, these water magnets attract many people. Especially tragic is the number of small children that accidentally fall into the water and drown. Most of these accidents occur because basic safety practices were ignored.

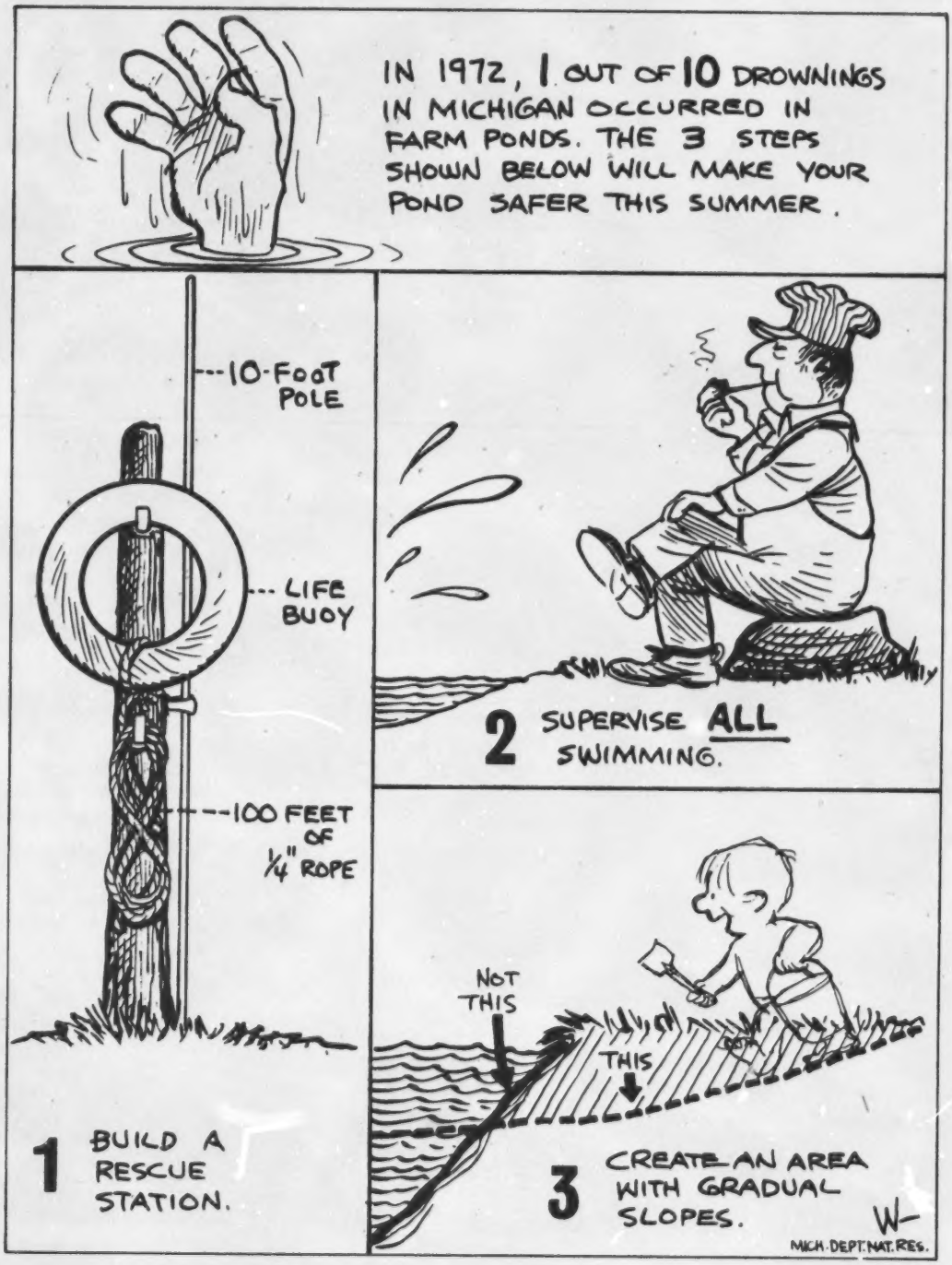
Special safety practices for dangerous water areas include:

1. Don't swim in waters posted against swimming.
2. Stay away from dangerous water hazards and
3. Be cautious around any suspected water hazard.

Suggested Activities

Students and teacher should review the "Safety Rules for Swimmers" and "Our Pool Rules" posters discussing the reason for the rules. Students could make pictures of water hazards and facilities they are familiar with and give safety practices to be followed. Students could make a survey of private pools and other water facilities. A field trip to a water facility might be useful in following up on safety practices to use. Student could also distribute "Pool Rules" posters to owners of pools in the neighborhood or community as a class or group project.

Farm Pond Safety for Summer


IN 1972, 1 OUT OF 10 DROWNINGS IN MICHIGAN OCCURRED IN FARM PONDS. THE 3 STEPS SHOWN BELOW WILL MAKE YOUR POND SAFER THIS SUMMER.
---10-FOOT POLE
--- LIFE BUOY
---100 FEET OF 1/4" ROPE
1 BUILD A RESCUE STATION.
2 SUPERVISE ALL SWIMMING.
NOT THIS
THIS
3 CREATE AN AREA WITH GRADUAL SLOPES.
MICH. DEPT. NAT. RES.

Resource Materials

"Safety Rules for Swimmers" (Poster) — Department of Natural Resources, Recreational Safety Section

"Our Pool Rules" — (Poster) — Department of Natural Resources, Recreational Safety Section

"Aquatic Safety Standards for Children's Camps" — (Booklet) — State of Michigan, Dept. of Social Services

Lesson 6
Ice Safety

In this unit, ice-oriented winter activities are reviewed. Basic ice safety principles are discussed along with the similarity of ice emergencies, survival and rescue to water emergencies, survival and rescue.

Unit Objectives

Teach students the principles of ice safety, survival and rescue.

Travel over frozen water surfaces is a way of life in Michigan. Each winter thousands of ice fishermen, snowmobilers, ice boaters and skaters take to the frozen lakes and streams in Michigan. Hundreds of others use frozen surfaces for cross-country skiing, hiking and trapping.

Falling through the ice into cold water is no joke. Often, the result of such an accident is death by drowning or exposure (hypothermia). Ice fishermen and snowmobilers have, in the recent past, been most prone to ice emergencies.

Ice travel is always risky. In Michigan we recognize three periods during the cold season as being most dangerous to ice travel. They are:

1. Early season ice (November, December, ice not of uniform thickness)
2. Midwinter thaws (freezing, melting and refreezing "honeycombs" and weakens ice)
3. Spring time ice (ice weakened by warming temperatures, sun and wind; honeycomb effect is most prevalent at this time)

When ice forms solidly after a prolonged freeze, there is a general "rule of thumb" that can be used to judge what or how much activity the ice will support. The rule is:

1 inch — No!
2 inches — One person, *maybe!*
3 inches — A few people spread out.
4 inches — General use.
5 inches or more — snowmobiling.

How can you tell? By checking the thickness before you go out with an ice auger or ice chisel. People must remember that the "rule of thumb" is only general and may not work in all cases.

There are some other important indicators of ice conditions:

1. Clear ice is dangerous; look for a bluish color which indicates strong well-formed ice.
2. Remember that heavy snows on lake surfaces can act as an insulator which prevents enough ice for safe use all winter long.
3. Know where spring-fed areas are in your favorite lakes and stay away from them.
4. Avoid inlets and outlets of lakes.
5. River ice is especially dangerous and can vary in thickness in very short distances. Travel on ice formed over moving water is extremely dangerous and not advisable under any circumstance.

If you fall through ice: An unexpected plunge into icy water is a threat to all cold climate outdoorsmen. Self control and knowledge of self rescue techniques are important lifesavers. Falling into cold water (especially through the ice) induces panic. Panic is a forerunner of exhaustion and death in cold water.

Self Rescue: When a person breaks through the ice, they should relax. Heavy clothing traps air and will float them on the surface for some time. To get out, people must spread their arms along the ice edge, kick hard. This will propel part of their upper torso onto the unbroken ice. The next step is to roll away from the hole, not standing up again until they're sure of solid footing. When people travel on ice they suspect may be thin, they should carry a long pole. The pole will help distribute their weight if they should break through and can be used as a lever to get back on solid ice and safety.

Rescue of Others: It may be necessary to rescue an individual who has fallen through ice. *Never* enter the water to help him. The safest method of single ice rescue is by using a *reaching assist.* Use a board, ladder, tree branch, article of clothing, oar, or paddle to effect rescue. Again, the rescuer must distribute his weight on the ice and approach the hole on hands and knees or by lying down and squirming along on the stomach. The reaching assist will help to keep an individual afloat; the victim can also crawl out by using the assist. When several persons are present, a human chain can be used to distribute weight and effect a rescue.

Rescue equipment: On areas where heavy use is made of ice-covered, deep waters, some basic resuce equipment should be at hand in case of emergency. Typically, a ring buoy and 50' of nylon rope, a ladder, a long plank, a strong wooden or metal pole, or a 50' length of strong rope with loop ends would comprise good rescue equipment.

You will notice that ice rescues and equipment are similar to those used during the summer. The principles are the same, with the climatic conditions the primary difference. A cool head, clear thinking and effective action result in rescuing yourself or others.

Suggested Activities

Students could gather samples of the illustrated rescue equipment. Using the equipment, students should practice individual and group rescues. Any open area such as gym floor, stage or multipurpose room can be used. Self rescue can be practiced by having students lie on the floor at a point marked in some convenient manner as a simulated ice edge.

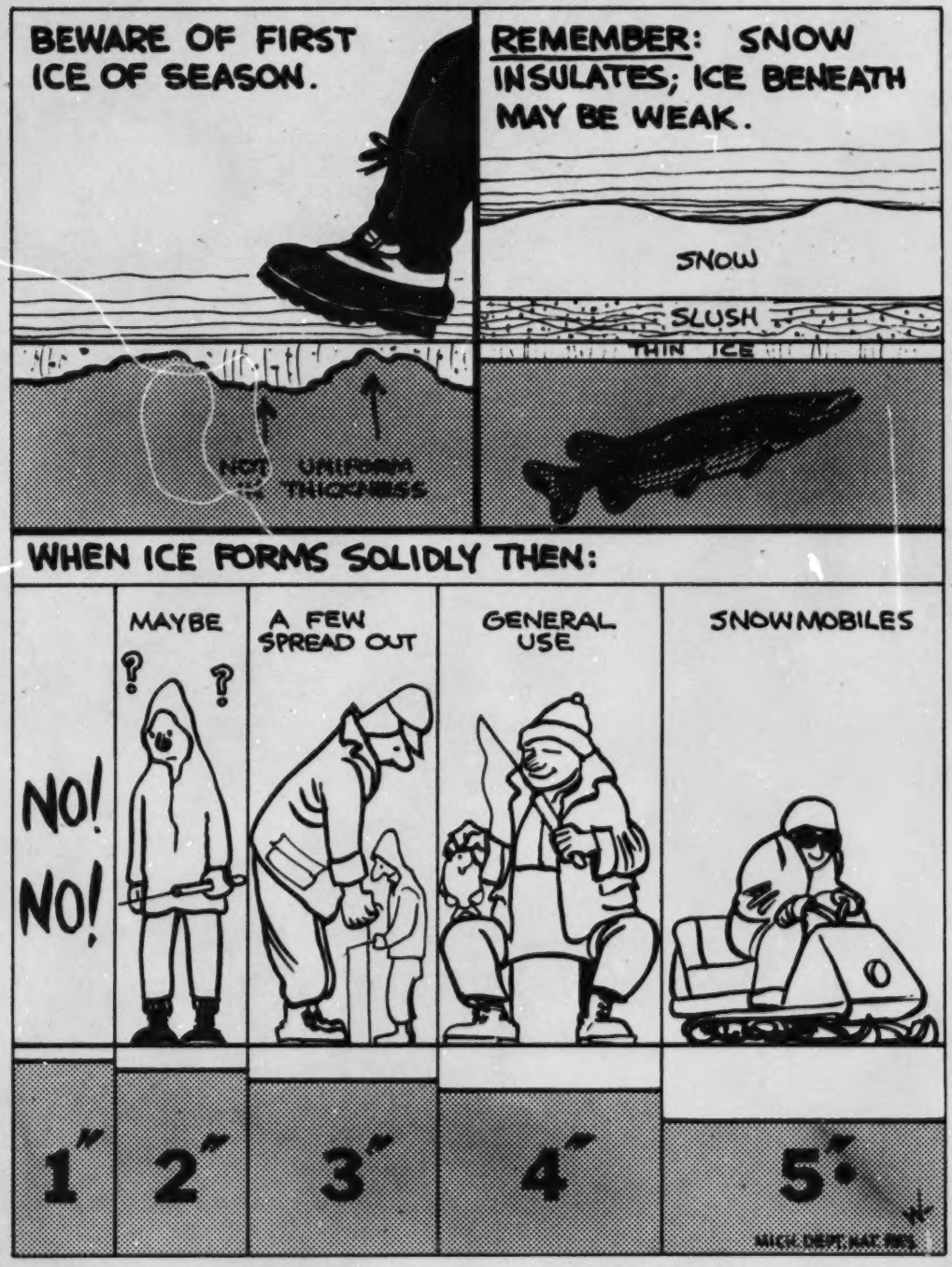
Resource Materials

"The Trouble With Ice" — 16 mm color sound film on ice safety from Boy Scouts of America at most Council offices.

"Ice Rescue" — 11 mm black and white sound 4½ minute film on ice rescue techniques available at most local American Red Cross Chapters.

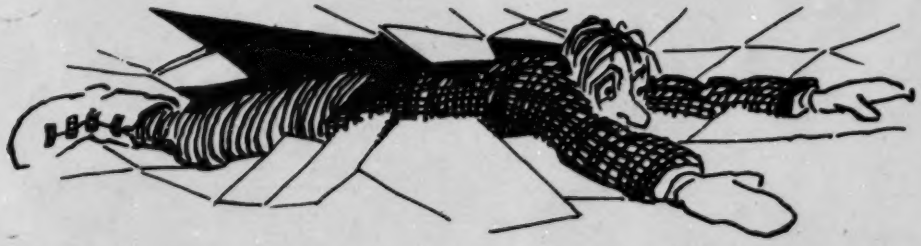
"Hard Water Hazards" — 31 unit slide series covering general aspects of ice safety and rescue available from Recreational Safety Section, Department of Natural Resources.

Know Your Ice



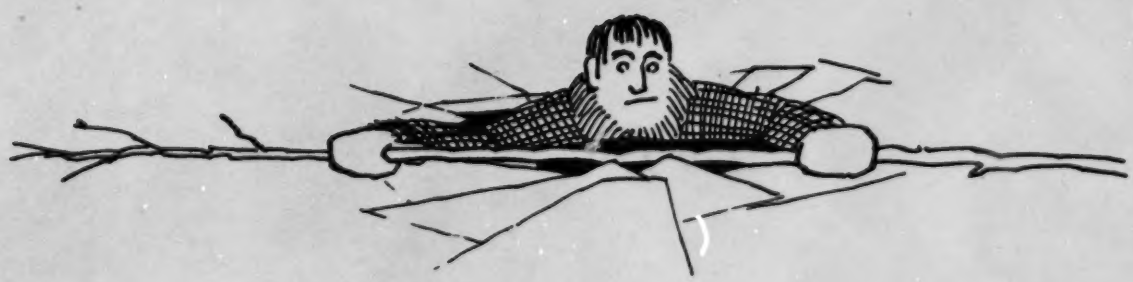
SELF RESCUE

SPREAD YOUR WEIGHT:



Roll out.

Use a long support.



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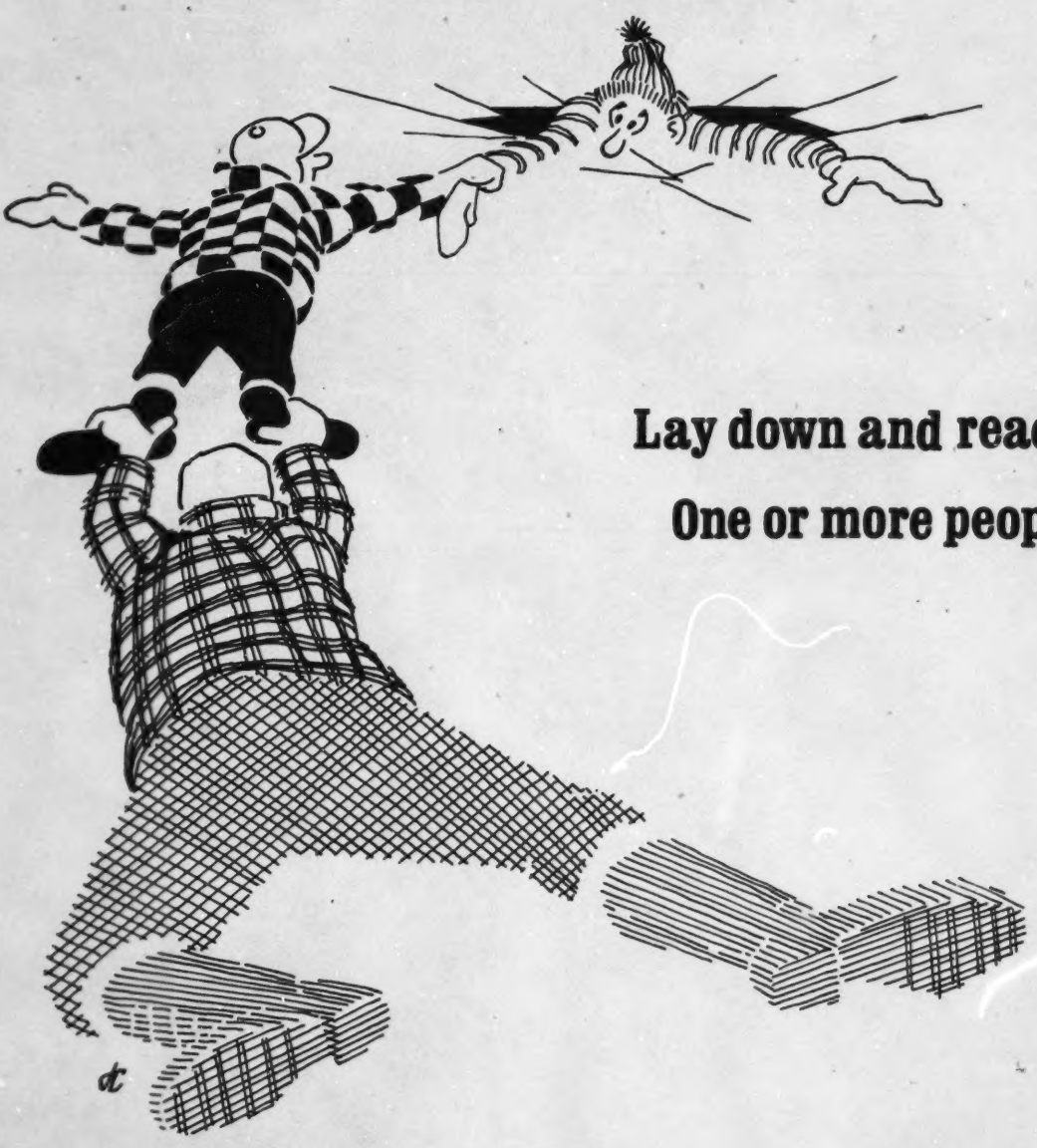
THIN ICE RESCUE



Lay down and reach.

One or more people.

Lesson 7
Artificial Respiration

This most important unit covers the basic ideas and techniques of rescue breathing (mouth-to-mouth resuscitation). The student who learns this technique will be able to assist in almost any accident where the victim's breathing has stopped.

Unit Objectives

Provide the student with the ability to effectively administer rescue breathing to an accident victim.

A drowning victim usually dies from lack of oxygen, a component of the air we breathe and not as a result of water in the lungs or stomach. Generally, a person will die within six minutes after breathing has stopped. Therefore, it is important to begin some form of artificial respiration *as soon as possible* whether you are in a boat, supporting the victim at the side of a boat, pulling him ashore, or on shore. Rescue breathing (mouth-to-mouth resuscitation) is the use of a person's own breath to revive someone who is unable to breathe for himself. It is the oldest, most efficient and effective method of artificial respiration. "Mouth-to-mouth" methods of artificial respiration are more efficient than manual methods and have at least three important advantages:

1. They inflate the lungs immediately.
2. They tell you if the airway is blocked.
3. They force more air into the victim than any of the manual methods.

Absence of breathing movements or blue color of lips, tongue and fingernails are danger signs indicating lack of oxygen in the blood and the need for help in breathing. *When in doubt, begin rescue breathing.* No harm can come from its use, but grave consequences follow if it is not started promptly.

Don't waste time by:

Feeling victim's pulse
Finding special equipment
Moving the victim
Going for help
Getting to shore

Only a short time without oxygen can cause serious damage to the brain.

If a person has stopped breathing, place that person on his back. Place yourself to one side or the other of the victim's head. Put one hand under the victim's neck and lift. Place the other hand on the victim's head and tilt back until the skin on the throat is stretched. Why?

During normal breathing, air flows easily through the nose or mouth to and from the lungs. When a person loses consciousness, the relaxed tongue can completely block the movement of air through the throat. Lifting the neck and tilting the head back opens the throat by moving the tongue out of the way. Sometimes this is all that is needed to restore normal breathing.

The air you breathe is not "used up." It contains enough oxygen to save a person's life. If you breathe twice as deep as usual, your exhaled air contains more than enough oxygen for any victim. When each inflation expands the victim's chest, you can be sure rescue breathing is working.

Now that your victim is in the proper position, use the thumb and forefinger of the hand tilting the head to pinch the victim's nose. Then take a deep breath, open your mouth wide, place your mouth completely over the victim's mouth and blow. When you take your mouth away listen for the air coming back out. If you hear it, keep doing the same thing. Inflate an adult's lungs at least 10 times a minute. Babies require smaller puffs with the cheeks, about 20 times a minute.

Some cases, such as rigid jaws or damage to the mouth, may require using the mouth-to-nose method. Place the hand used to lift the neck under the victim's chin to hold the mouth closed and the head tilted back. Make a seal over the victim's nose and the rest is the same as in mouth-to-mouth.

For small children and babies, the mouth-to-mouth and nose method seems to work best. While one hand lifts the neck and the other tilts the head back as before, open your mouth wide and make a seal over the nose and mouth of the victim and the rest of the process is the same as before.

If the first inhalation of the victim's lungs indicates blockage of the airway, or you cannot hear air escaping or see the chest rise, recheck the head position and try again. In most cases correction of the head position is all that is needed.

If after the second try the airway is still blocked, visually check in the mouth for foreign material such as food, false teeth, gum or the like. Turn the victim's head to one side, sweep the material out with your fingers, reposition the head and try to inflate the victim's lungs again.

If the airway is still blocked, roll the victim to one side, and strike the victim sharply between the shoulder blades to dislodge the obstruction. Again, sweep your fingers through the victim's mouth to remove the material, reposition the head and inflate the lungs.

Babies and small children with a blocked airway can be suspended momentarily by the ankles or over the arm and given a few sharp pats between the shoulder blades. Again, sweep a finger through the mouth to clear the dislodged material, reposition the head and inflate the victim's lungs.

As stated in the beginning, rescue breathing must be started *as soon as possible* after the individual has stopped breathing. The rescue breathing system is readily adaptable and can be administered in many situations on the spot before the victim is moved from the location of the accident. Rescue breathing has been successfully used to restore breathing to persons hanging on power poles, in the water, trapped under things and other situations.

In the case of a water accident, rescue breathing can be successfully combined with any of the standard rescue techniques. Rescue breathing can and must be started as soon as a submerged person is brought to the surface. A floating victim has only to be rolled over and rescue breathing can begin. Rescue breathing should be continued while the victim is moved to shore. This system has been successfully applied even while leaning over the transom of a small boat.

RESCUE BREATHING

Check for obstructions.

Raise neck.

Tilt head.

Inflate.

Exhale.

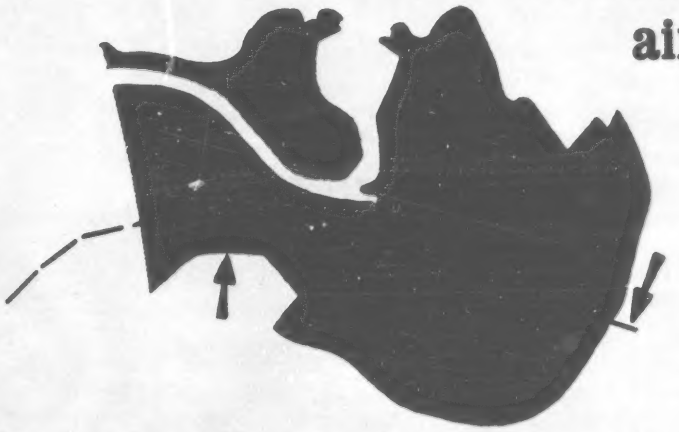
Repeat until a doctor arrives.

THE AIRWAY

Person upright, conscious-
airway open.

Person prone, unconscious-
airway closed;

neck raised, head tilted-
airway open.



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SMALL CHILDREN AND BABIES

Clear obstructions from mouth and throat.

Immediately start breathing routine.

Practice rescue breathing at every opportunity. Each member of your family should learn and practice rescue breathing. It's too late to learn when the emergency arrives.

The advantages of rescue breathing are:

1. Works best in many situations because the victim does not need to be moved or placed on the ground.
2. Rescuer can get oxygen to the victim's lungs faster than any other known emergency method of artificial respiration.
3. Rescuer is in immediate contact and control of victim's face and breathing.
4. Both of rescuer's hands are free to keep air passage open.
5. Rescuer sees, feels and hears effect of each inhalation or inflation of the victim's lungs.
6. Rescuer has big reserves of air and strength for inflating victim's lungs.
7. Rescuer can control the vigor of his efforts to fit the size of the victim.
8. Small rescuer can breathe for large victim.
9. Rescuer can continue for hours without exhaustion.
10. No special equipment is needed.

Suggested Activity

There may be an opportunity to obtain one or more of the training mannequins (Rescue-Anne, etc.) from a nearby Red Cross Chapter, Fire Department, or police agency so that students can practice this valuable skill. All students should be given the opportunity to practice "rescue breathing" until you are confident of their ability to effectively administer it.

Resource Materials

"Breath of Life" — 16 mm film on rescue breathing from local Red Cross Chapters.

Lesson 8
Effects of Cold — Exposure and Hypothermia

In this last unit, information about the effects of cold, exposure, and hypothermia are explained along with simple techniques on recognizing the symptoms and first aid treatment for victims.

Unit Objectives:

Acquaint the students with the effects of exposure on the human body and with first aid procedures for victims of exposure.

A combination of wind, cold temperatures and wetness cause a condition known as "exposure." If a person continues in this condition and gets worse, the inevitable next step is "hypothermia." Hypothermia is described as the: lowering of the body's internal (core) temperature to below operational levels.

Outdoor recreationists, especially water users, should be aware that cool or cold, wet, windy weather can creep up on you before you are aware of it. Suddenly your fingers don't work, your arms are heavy, your legs are weak and you can't do what you want to do. Even in the early stages, you have been set up for an accident caused by your inability to act or react to something.

Hypothermia is reportedly the single largest factor in deaths to outdoor recreationists in the United States. Fishermen, hunters, hikers, campers, swimmers, and skiers are particularly prone to the effects of exposure and hypothermia. According to U. S. Coast Guard studies, the life expectancy of *uninjured persons* in the water without watertight or thermal protective clothing is:

½ to 3 hours at 40 degree F water
½ to 6 hours at 50 degree F water
2 to 24 hours at 60 degree F water
3 to 40 hours at 70 degree F water

Young persons and the very old would generally not survive much past the lower end of the time scale. Some agencies have much lower estimates than those of the Coast Guard.

The wind, coupled with low temperatures, can cause exposure and hypothermia. As an example, if the temperature is 10 degrees F and the wind is 10 MPH, the wind chill effect is equivalent to -9 degrees F. The Wind Chill Chart shows the surprising effects of wind and temperature.

Wind Chill Chart

Estimated Wind Speed in MPH	Actual Thermometer Reading (°F)											
	50	40	30	20	10	0	−10	−20	−30	−40	−50	−60
	Equivalent Temperature (°F)											
Calm	50	40	30	20	10	0	−10	−20	−30	−40	−50	−60
5	48	37	27	16	6	−5	−15	−26	−36	−47	−57	−68
10	40	28	16	4	−9	−21	−33	−46	−58	−70	−83	−95
15	36	22	9	−5	−18	−36	−45	−58	−72	−85	−99	−112
20	32	18	4	−10	−25	−39	−53	−67	−82	−96	−110	−124
25	30	16	0	−15	−29	−44	−59	−74	−88	−104	−118	−133
30	28	13	−2	−18	−33	−48	−63	−79	−94	−109	−125	−140
35	27	11	−4	−20	−35	−49	−67	−82	−98	−113	−129	−145
40	26	10	−6	−21	−37	−53	−69	−85	−100	−116	−132	−148
(wind speeds greater than 40 mph have little additional effect)	LITTLE *DANGER (for properly clothed person)				INCREASING *DANGER			GREAT *DANGER				
	*Danger from freezing of exposed flesh.											

Snowmobilers and skiers must remember that the speed of their activities creates its own wind, making warm clothing a must.

Clues to exposure are shivering, however slight; being uncomfortably cool; numbness or stiffness in fingers, hands, or feet; general weakness and inability to think clearly. As conditions worsen, the person goes into a state of shock, finally collapsing and then death. What to do?

When you are uncomfortably cool or cold, immediately stop what you are doing, find shelter and warmth immediately. In most cases, leave your wet clothes on until you find shelter. Most clothing worn by outdoor recreationists, especially wool, will still provide warmth even when wet.

Since the victim of hypothermia has difficulty detecting that he has hypothermia, it is especially important that young people be supervised by a knowledgeable adult when they are out in the cold for any length of time. Young people tend to ignore the warning signs and need the guidance of concerned adults.

Resource Materials

"Four Lines of Defense Against Hypothermia" — Pamphlet available from: Safeco Insurance Company , Publication Number #AR-32 10/70

"By Natural Rules" — 16 mm film available from: Jim Lawless, Motion Picture Consultants, 1545 N.E. 130th Street, Seattle, Washington 98125.